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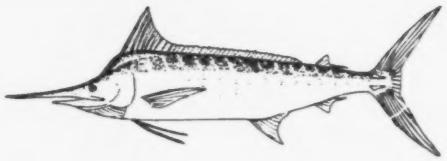
OCEANIC GAMEFISH INVESTIGATIONS: 1978, 1979 & 1980



ALLYN MONTY LOPEZ

DECEMBER 1981

ORIGINAL

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Center
75 Virginia Beach Drive
Miami, Florida 33149

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NOAA Technical Memorandum
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OCEANIC GAMEFISH INVESTIGATIONS: 1978, 1979 & 1980

ALLYN MONTY LOPEZ

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U.S. DEPARTMENT OF COMMERCE
Malcom Baldrige, Secretary

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
John V. Byrne, Administrator

NATIONAL MARINE FISHERIES SERVICE
William G. Gordon, Assistant Administrator for Fisheries

I

INTRODUCTION

Oceanic Gamefish Investigations were started in 1972 by the Southeast Fisheries Center (SEFC) to collect and evaluate recreational catch and effort data to aid in determining stock status of blue marlin (Makaira nigricans), white marlin (Tetrapturus albidus), and sailfish (Istiophorus platypterus), and to study their biology and ecology. The purpose of this report is to present data for the years 1978, 1979, and 1980. Data were collected by the Office of Technical and Information Management Services (TIMS) of the SEFC, under the auspices of the Oceanic Gamefish Investigations program, and came from various fishing areas located throughout the Gulf of Mexico, the Caribbean, the Bahamas, the east coast of the United States, and the Florida Keys. This publication is made possible through the cooperation given by sport fishermen, charter boat captains, and other big game fishing enthusiasts.

Fishermen are curious about this work and continually ask how both the data and the samples we collect from these fish are utilized. An additional section briefly explaining associated billfish research has been included to answer some of these questions.

SURVEY METHODOLOGY

Data collection is conducted by biologists and port samplers throughout the southeast Atlantic and Gulf of Mexico, including the Bahamas and the Caribbean. Only information about fishing for billfish is collected. In the Gulf of Mexico port samplers have been stationed at the following ports: Port Aransas, Texas; Grand Isle, Louisiana; South Pass, Louisiana; Mobile, Alabama/Pensacola, Florida; and Destin, Florida. One biologist, located in Panama City, Florida, is responsible

for the Gulf of Mexico data and the operation of that division. Prior to 1980 biologists from Miami collected only tournament data from the Atlantic. In 1980, a contract was issued to collect dock and tournament data from the east coast of the United States. State biologists from South Carolina and Florida provide data from their respective states.

Biologists in Miami, Florida, cover the Caribbean and the Bahamas. Information from the east coast and the Gulf of Mexico is collected from May-September and is both tournament and non-tournament data. The Bahamas and the Caribbean information is collected from tournaments held from March-July. South Florida and the Florida Keys data is based only on sailfish tournaments held from November-January.

Both tournament and non-tournament data are presented. Data included: catch; effort (hours spent trolling); weather conditions; fishing activities related to the time of day; species hooked, boated, tagged, released, or lost; length; weight; sex; and technique of fishing. All tables and charts contain trolling effort. Hours spent driftfishing for swordfish are reported separately.

CATCH AND EFFORT

In the past three years 32,349 interviews have been conducted to document 152,114 hours of billfishing effort for the years 1978, 1979, and 1980. The 1979 fishing season showed a noticeable decrease in amount of fishing effort sampled compared to the previous year. Data for 1980 data show an increase of 16,896 hours of effort sampled. This increase is due partially to the initiation of the contract issued to Environmental Consultants Inc. Through this contract 4,854 interviews documented over 15,000 hours of effort. By expanding our data

collection through this contract, we were able to provide data representative of the entire study area. Tables 1, 2, and 3 show all tournament and non-tournament data collected for the past three years. Numbers in these tables indicated the number of fish hooked by species. Table 4 summarizes the number of fish boated, which includes tagged and released fish, versus the number of fish hooked. Angler success (number of fish boated divided by the number of fish hooked) for blue marlin was 44% while for both white marlin and sailfish it was approximately 60%. Table 5 shows that 90.7 hours of trolling were required to boat a blue marlin and 27.7 hours to boat a white marlin. The number of hours trolled to boat a sailfish varies greatly due to their distribution. The number of hours to boat white marlin was low due to the excellent white marlin season experienced by both the Gulf of Mexico and the east coast in 1979 and 1980. Almost 19 hours of trolling were required to catch a billfish. Total time spent fighting a fish was only 3% of the time spent trolling for billfish.

SIZE COMPOSITION

Average size of billfish measured by program biologists for the three year period showed very little fluctuation. Smallest, largest, and average size by year are presented in Table 6. The average weight of blue marlin sampled during the three year period was 254 pounds. The smallest blue marlin recorded was 39 pounds, caught in the Gulf of Mexico in 1980. The largest blue marlin was 1060.5 pounds caught in Bimini in 1979. Also in 1979, a 9.8 pound white marlin was recorded in the Gulf of Mexico and the east coast of the United States reported a 135 pound white marlin.

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Table 1: Tournament Name, Location, Date, Hours Fished, and Number of Fish Hooked by Species, 1978*

Tournament	Location	Date	Hours Fished	Number Hooked					
				Blue Marlin	White Marlin	Sail Fish	Sword Fish	Bluefin Tuna	Yellowfin Tuna
Masters Invitational Sailfish	Palm Beach, FL	Jan 10-14	728:00	0	0	556	0	0	0
Invitational Gold Cup	Palm Beach, FL	Jan 18-21	1413:15	0	0	329	0	0	0
Frankie Brown Memorial	Bimini, Bahamas	Mar 6-9	751:45	29	33	1	0	0	0
Bimini White Marlin	Bimini, Bahamas	Mar 27-31	281:05	1	20	4	0	0	0
Annual His and Hers Billfish	Chub Cay, Bahamas	Apr 3-7	350:00	9	12	7	0	0	0
Members Only Billfish	Chub Cay, Bahamas	Apr 10-14	371:00	4	21	16	0	0	0
Bimini Light Tackle	Bimini, Bahamas	Apr 17-21	184:45	5	8	0	0	0	0
Boca De Yuma	Dominican Republic	May 1-5	1873:00	13	154	9	0	0	0
Annual Sea Pines Plantation	Hilton Head Isl, SC	May 6-7	410:00	20	0	1	0	0	0
New Orleans Big Game Fishing Club First	South Pass, LA	May 11-13	312:45	4	0	0	0	0	5
Bimini Billfish Tuna	Bimini, Bahamas	May 15-19	436:00	6	6	6	0	0	4
Georgetown Blue Marlin	Georgetown, SC	May 25-27	504:40	25	2	1	0	0	0
South Pass Memorial Day	South Pass, LA	May 26-28	525:15	13	2	0	0	0	0
Mobile Big Game Fishing Club Memorial Day	Orange Beach, AL	May 27-28	417:30	4	1	0	0	0	0
Big Rock Blue Marlin	Moorehead City, NC	Jun 5-8	594:00	22	4	1	0	0	0
South LaFourche Rodeo	South Pass, LA	June 9-11	114:40	3	0	0	0	0	1
Hatteras Blue Marlin	Hatteras, NC	Jun 12-17	1459:00	43	43	0	0	0	0
New Orleans Big Game Fishing Club Invitational	South Pass, AL	June 15-17	1655:15	25	8	1	0	0	16
Walter Founderen Poco Bueno	Port O'Conner, TX	Jun 16-17	739:00	25	0	3	0	0	2
Bimini Blue Marlin	Bimini, Bahamas	Jun 20-23	1067:35	40	4	7	0	1	0
Cat Cay Blue Marlin	Cat Cay, Bahamas	Jun 26-30	516:30	22	5	9	0	0	2
Golden Meadow Tarpon Rodeo	Grand Isle, LA	Jul 1-3	837:25	14	6	0	0	0	0
Pensacola Invitational Billfish	Pensacola, FL	Jun 30-Jul 2	2566:05	47	63	16	0	1	3
General Ray Huff Billfish	South Pass, LA	Jul 1-3	643:45	16	8	2	0	0	24
Texas Championship Billfish	Port Aransas, LA	Jul 1-2	462:00	15	2	7	0	0	0
Golden Meadow Big Game Fishing Club Ladies	Grand Isle, LA	Jul 4-5	117:30	6	3	0	0	0	0
South Jersey Open White Marlin	Cape May, NJ	Jul 6-7	362:30	0	10	0	0	0	71
Port Aransas Masters	Port Aransas, TX	Jul 6-7	286:30	7	0	4	0	0	0
Chub Cat Blue Marlin	Chub Cay, Bahamas	Jul 10-14	1079:45	23	0	0	0	0	0
Cape May Marlin	Cape May, NJ	Jul 11-13	274:00	0	39	0	0	0	7
Deep Sea Roundup	Port Aransas, TX	Jul 11-12	711:00	6	3	15	0	0	1
New Orleans Big Game Fishing Club Ladies	South Pass, LA	Jul 14-16	560:05	18	15	1	0	0	14
Port Mansfield Fishing	Port Mansfield, TX	Jul 2-22	430:05	8	3	17	0	0	0
Port Aransas Outboard	Port Aransas, TX	Jul 21-22	368:00	0	0	2	0	0	0
Dauphin Island Deep Sea Rodeo	Orange Beach, AL	Jul 22-23	16:00	1	2	0	0	0	0
Mid-Atlantic White Marlin Open	Ocean City, MD	Jul 24-26	198:00	0	34	0	0	0	1
Ernest Hemingway Billfish	Bimini, Bahamas	Jul 24-28	598:00	7	0	7	0	0	0
Grand Isle Tarpon Rodeo	Grand Isle, LA	Jul 27-29	1452:20	16	19	0	0	0	6
Eagle Claw Freeport Open	Freeport, TX	Jul 27-29	924:20	26	14	23	0	0	5

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Table 1 (Continued)

Tournament	Location	Date	Hours Fished	Number Hooked: Blue Marlin	White Marlin	Sail Fish	Sword Fish	Bluefin Tuna	Yellowfin Tuna
Annual Fort Walton-Destin Billfish	Destin, FL	Aug 2-3	233:45	5	1	7	0	0	0
Texas International Fishing	Port Isabel, TX	Aug 3-5	539:30	6	3	7	0	0	1
Southwest Fishing Club	South Pass, LA	Aug 4-5	180:20	8	4	0	0	0	0
Mobile Big Game Fishing Club Ladies	Orange Beach, AL	Aug 5-7	36:30	0	6	0	0	0	0
Panama City Captain's Day	Panama City, FL	Aug 11-13	430:10	4	53	6	0	0	0
Dean Hawn Memorial Billfish	Port Aransas, TX	Aug 11-12	377:20	6	4	9	0	0	0
Governors Charity Invitational	St. Thomas, V.I.	Aug 17-21	190:30	68	0	0	0	0	0
Empire South Pass Fishing Rodeo	South Pass, LA	Aug 17-19	951:05	22	27	0	0	0	8
Alabama Pleasure Island Deep Sea Fishing	Mobile, AL	Aug 18-20	200:45	5	2	2	0	0	1
Key Allegro Billfish	Key Allegro, TX	Aug 19-20	162:45	3	9	3	0	0	0
Alabama Invitational Billfish	Orange Beach, AL	Sep 1-3	1252:30	56	94	11	0	0	6
Ocean City Annual White Marlin	Ocean City, MD	Sep 11-15	216:30	0	145	0	0	0	7
San Juan International Billfish	San Juan, P.R.	Sep 15-17	2093:30	43	1	0	0	0	0
Annual Destin Billfish	Destin, FL	Sep 15-17	1530:55	37	62	6	0	0	4
New Orleans Big Game Fishing Club September	South Pass, LA	Sep 15-17	227:10	5	3	1	0	0	18
Oceanic Open	Sea Pines, SC	Sep 20-23	297:35	4	2	8	0	0	0
$1,000 Showdown	Destin, FL	Sep 23-24	304:40	3	17	1	0	0	0
Oregon Inlet Fishing	Oregon Inlet, NC	Sep 28	361:00	1	17	0	0	0	3
Tripod	Marathon, FL	Nov 8-11	567:30	0	0	162	0	0	0
Bill King One Day Billfish	Marathon, FL	Nov 13	112:00	0	0	24	0	0	0
Key Colony Beach Sailfish	Key Colony Bch, FL	Nov 15-19	1104:00	0	0	142	0	0	0
Key West Sailfish	Key West, FL	Nov 21-25	853:00	0	0	50	0	0	0
Islamorada Triple Crown	Islamorada, FL	Nov 29-Dec 3	872:15	1	0	73	0	0	0
Stuart Light Tackle	Stuart, FL	Dec 6-10	1129:10	1	0	219	0	0	0
Dock Sampling									
Panama City, FL	Trolling	May 24-Nov 4	703:10	13	22	9	0	0	2
Destin, FL	Trolling	Apr 15-Nov 15	5170:05	112	270	83	0	0	4
Pensacola, FL	Trolling	Apr 29-Sep 17	898:30	14	26	9	0	0	2
Mobile, AL	Trolling	May 20-Nov 11	637:35	22	29	1	0	0	4
Grand Isle, LA	Trolling	Jan 27-Oct 21	2374:40	33	20	2	0	0	4
South Pass, LA	Trolling	Apr 15-Oct 29	1591:00	37	27	0	0	0	23
Port Aransas, TX	Trolling	Apr 12-Oct 1	1137:15	20	9	51	0	0	0

*Tournaments sampled by NMFS personnel or by personnel from cooperating agencies, 1978.

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Table 2: Tournament Name, Location, Date, Hours Fished, and Number of Fish Hooked by Species, 1979*

Tournament	Location	Date	Hours Fished	Number Hooked					
				Blue Marlin	White Marlin	Sail Fish	Sword Fish	Bluefin Tuna	Yellowfin Tuna
Masters Invitational Sailfish	Palm Beach, FL	Jan 9-13	700:00	0	0	506	0	0	0
Invitational Gold Cup	Palm Beach, FL	Jan 17-20	1079:30	0	0	104	0	0	0
Frankie Brown Memorial	Bimini, Bahamas	Mar 19-23	1247:30	10	32	0	0	0	0
Annual His and Hers Billfish	Chub Cay, Bahamas	Mar 28-Apr 1	392:30	24	30	0	0	0	0
Members Only Billfish	Chub Cay, Bahamas	Apr 4-8	427:00	14	18	4	0	0	1
Bimini Light Tackle	Bimini, Bahamas	Apr 30-May 4	42:15	0	1	3	0	0	0
Atlantic Blue Marlin Open	Hilton Head Isl, SC	May 6	149:25	8	0	0	0	0	0
New Orleans Big Game Fishing Club First	South Pass, LA	May 11-13	263:10	10	3	0	0	0	10
Bimini Billfish and Tuna	Bimini, Bahamas	May 14-18	229:49	6	10	1	0	0	0
South Pass Memorial Day	South Pass, LA	May 26-28	497:35	11	3	1	0	0	6
Mobile Big Game Fishing Club Memorial Day	Orange Beach, AL	May 26-27	239:15	12	6	0	0	0	0
Georgetown Blue Marlin	Georgetown, SC	May 27	242:25	15	1	0	0	0	0
Annual Big Rock Blue Marlin	Moorehead City, NC	Jun 4-8	643:00	20	11	0	0	0	0
South LaFourche Rodeo	South Pass, LA	Jun 8-10	393:40	20	1	0	0	0	0
Southwest Fishing Club	South Pass, LA	Jun 8-10	163:30	4	2	0	0	0	1
Hatteras Blue Marlin	Hatteras, NC	Jun 11-15	981:00	12	17	0	0	1	0
Walter Fonderen Poco Bueno	Port O'Conner, TX	Jun 15-16	421:30	19	0	1	0	0	4
General Ray Huff	South Pass, LA	Jun 15-17	331:55	18	12	1	0	0	4
Golden Meadow Big Game Fishing Club Ladies	Grand Isle, LA	Jun 17	120:00	5	2	1	0	0	1
Bimini Blue Marlin	Bimini, Bahamas	Jun 18-23	1376:30	34	10	9	0	0	0
Cat Cay Blue Marlin	Cay Cay, Bahamas	Jun 25-29	646:30	15	6	6	0	1	0
New Orleans Big Game Fishing Club Invitational	South Pass, LA	Jun 28-30	1783:47	79	51	2	0	1	21
Texas Championship Billfish	Port Aransas, TX	Jun 30-Jul 1	389:50	9	1	1	0	0	0
Golden Meadow Tarpon Rodeo	Grand Isle, LA	Jul 6-8	792:15	28	13	0	0	0	4
	Drifting		9:00	0	0	0	1	0	0
Pensacola International Billfish	Pensacola, FL	Jul 6-8	2137:45	52	140	26	0	0	5
	Drifting		12:00	0	0	0	1	0	0
Port Aransas Masters Billfish	Port Aransas, TX	Jul 6-7	174:35	6	0	0	0	0	0
Chub Cay Blue Marlin	Chub Cay, Bahamas	Jul 9-13	961:13	36	0	3	0	0	0
Deep Sea Roundup	Port Aransas, TX	Jul 11-12	375:10	7	3	10	0	0	2
New Orleans Big Game Fishing Club Ladies Day	South Pass, LA	Jul 13-15	418:55	17	9	1	0	0	28
Ernest Hemingway Billfish	Bimini, Bahamas	Jul 17-20	1067:52	23	1	20	0	0	0
Eagle Claw Texas Open	Freeport, TX	Jul 19-21	1061:40	28	56	19	1	0	2
	Drifting		61:00	0	0	0	3	0	0
Port Mansfield Fishing	Port Mansfield, TX	Jul 19-21	302:34	2	22	15	0	0	4
District Attorney Billfish	South Pass, LA	Jul 20-21	84:35	3	0	0	0	0	1
Dauphin Island Deep Sea Rodeo	Orange Beach, AL	July 20-21	146:00	5	11	0	0	0	0
	Drifting		4:00	0	0	0	1	0	0

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Table 2 (Continued)

Tournament	Location	Date	Hours Fished	Number Hooked					
				Blue Marlin	White Marlin	Sail Fish	Sword Fish	Bluefin Tuna	Yellowfin Tuna
Annual Fort Walton-Destin Billfish	Destin, FL	Jul 21	199:25	6	19	0	0	0	0
Mid-Atlantic White Marlin Open	Ocean City, MD	Jul 23-25	270:00	1	50	0	0	0	5
Grand Isle Tarpon Rodeo	Grand Isle, LA	Jul 26-29	427:35	7	5	0	0	0	4
Challenge Cup	Ocean City, MD	Jul 28-29	145:00	0	82	0	0	0	0
Texas International Fishing	Port Isabel, TX	Aug 2-4	850:25	23	16	24	0	0	171
Mobile Big Game Fishing Club Ladies	Orange Beach, AL	Aug 4-5	322:40	6	30	0	0	0	0
Gulf Breeze Optimists Rodeo	Pensacola, FL	Aug 4-5	65:20	0	6	1	0	0	0
	Drifting		15:00	0	0	0	2	0	0
International Tourist	Havana, Cuba	Aug 9-13	454:00	12	0	3	0	0	0
St. Thomas Invitational Blue Marlin	St. Thomas, V.I.	Aug 9-13	216:15	28	1	0	0	0	0
Dea Hawn Memorial	Port Aransas, TX	Aug 10-11	179:35	12	1	2	1	0	5
Panama City Captain's Day Billfish	Panama City, FL	Aug 10-12	819:50	25	60	6	0	0	0
	Drifting		45:35	0	0	0	2	0	0
Annual Golden Meadow Big Game Fishing club	Grand Isle, LA	Aug 11-12	326:30	4	8	0	0	0	2
Empire-South Pass Fishing Rodeo	South Pass, LA	Aug 16-18	537:05	11	10	0	0	0	6
	Drifting		29:45	0	0	0	1	0	0
Port Aransas Rod and Reel	Port Aransas, TX	Aug 18-19	98:00	4	0	1	0	0	0
Key Allegro Fishing	Key Allegro, TX	Aug 18-19	171:02	5	7	1	2	0	0
Pensacola Ladies	Pensacola, FL	Aug 18-19	266:10	8	23	6	0	0	0
New Orleans Big Game Fishing Club Labor Day	South Pass, LA	Sep 1-3	245:20	12	9	0	0	0	1
Alabama International Billfish	Orange Beach, AL	Sep 1-2	1160:05	18	174	8	0	0	0
Oregon Inlet Fishing	Oregon Inlet, NC	Sep 18-21	599:00	2	278	4	0	0	0
New Orleans Big Game Fishing Club September	South Pass, LA	Sep 21-23	88:30	1	1	0	0	0	0
Oceanic Open	Hilton Head, SC	Sep 29-30	181:00	2	1	2	0	0	0
Bluewater Classic	Orange Beach, AL	Oct 12-13	317:20	16	37	2	0	0	3
Mobile Mini	Orange Beach, AL	Oct 13	27:30	0	0	0	0	0	0
Ketch L	Orange Beach, AL	Oct 27-28	131:05	2	17	0	0	0	0
Tripod	Marathon, FL	Nov 7-10	611:00	0	0	68	0	0	2
Bill King One Day Billfish	Marthon, FL	Nov 12	64:00	0	0	7	0	0	0
Key Colony Beach Sailfish	Key Colony Bch, FL	Nov 14-18	1208:30	0	0	67	0	0	0
Key West Sailfish	Key West, FL	Nov 20-24	432:30	0	0	75	0	0	0
Islamorada Sailfish (live bait)	Islamorada, FL	Nov 28-Dec 2	995:35	0	0	223	0	0	0
Stuart Light Tackle	Stuart, FL	Dec 5-9	1066:30	0	0	342	0	0	0

Table 2 (continued)

Tournament	Location
Dock Sampling	
Panama City, FL	Trolling
	Drifting
Destin, FL	Trolling
	Drifting
Pensacola, FL	Trolling
	Drifting
Mobile, AL	Trolling
	Drifting
Grand Isle, LA	Trolling
	Drifting
South Pass, LA	Trolling
	Drifting
Port Aransas, TX	Trolling
	Drifting
Biological Data	
Ocean City, MD	
Oregon Inlet, NC	

*Tournaments sampled by NMFS personnel or by personnel from cooperating a

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n	Date	Hours Fished	Number Hooked: Blue Marlin	White Marlin	Sail Fish	Sword Fish	Bluefin Tuna	Yellowfin Tuna
	Apr 15-Oct 15	440:25	15	29	2	0	0	0
		70:00	0	1	0	7	0	0
	May 6-Oct 30	3066:45	90	182	40	0	0	0
		358:19	0	0	1	37	0	0
	Jul 2-Oct 20	354:25	6	43	6	0	0	0
		55:59	0	0	0	6	0	0
	Jun 17-Oct 21	705:35	33	86	10	0	0	2
		27:30	0	0	0	2	0	0
	May 8-Oct 14	2641:25	70	28	3	0	0	16
		114:00	0	0	0	10	0	0
	Apr 14-Oct 21	851:40	38	22	0	0	0	6
		4:30	0	0	0	0	0	0
	Mar 29-Sep 12	512:45	9	9	16	0	0	4
		4:00	0	0	0	1	0	0
	Jul 4-Aug 31	1464:00	4	598	0	0	0	132
	Jul 7-Sep 29	1098:35	68	242	48	0	0	6

ooperating agencies, 1979.

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Table 3: Tournament Name, Location, Date, Hours Fished, and Number of Fish Hooked by Species, 1980*

Tournament	Location	Date	Hours Fished	Number Hooked: Blue Marlin	White Marlin	Sail Fish	Sword Fish	Bluefin Tuna	Yellowfin Tuna
Masters Invitational Sailfish	Palm Beach, FL	Jan 8-12	868:20	0	0	260	0	0	0
Annual Silver Derby Sailfish	Palm Beach, FL	Jan 12-Feb 1	866:30	0	0	487	0	0	0
	Drifting		5:00	0	0	9	0	0	0
Invitational Gold Cup	Palm Beach, FL	Jan 16-19	1326:00	0	0	316	0	0	0
International Women's Fishing Association	Palm Beach, FL	Jan 23-24	117:00	0	0	109	0	0	0
Frankie Brown Memorial	Bimini, Bahamas	Mar 10-14	1041:30	31	20	0	0	0	0
Annual Bacardi Billfish	Bimini, Bahamas	Mar 18-22	934:39	19	20	0	0	0	0
Annual His and Hers Billfish	Chub Cay, Bahamas	Mar 24-28	514:00	26	32	1	0	0	0
Members Only Billfish	Chub Cay, Bahamas	Mar 31-Apr 4	269:00	7	14	1	0	0	1
Bertram-Hatteras Billfish	Bimini, Bahamas	Apr 10-12	647:00	11	9	1	0	0	0
Atlantic Blue Marlin Open	Sea Pines, SC	May 3-4	313:00	32	2	0	0	0	0
New Orleans Big Fishing Club First	South Pass, LA	May 9-11	218:00	1	0	0	0	0	0
Calico Jack Blue Marlin	Moorehead City, NC	May 16-17	126:25	0	0	0	0	0	0
Georgetown Blue Marlin	Georgetown, SC	May 24-25	347:30	27	4	0	0	0	0
Mobile Big Game Fishing Club Memorial Day	Orange Beach, AL	May 24-25	328:00	5	5	3	0	0	2
South Pass Memorial Day	South Pass, LA	May 24-25	388:55	17	4	0	0	9	18
Bimini Big Game Fishing Club Members Only	Bimini, Bahamas	May 28-31	303:40	19	4	10	0	1	0
Big Rock Blue Marlin	Moorehead City, NC	Jun 2-6	534:20	6	8	0	0	0	2
Golden Meadow Big Game Fishing Club Invitational	Grand Isle, LA	Jun 5-7	926:00	20	15	0	0	0	5
South LaFourche Rodeo	Grand Isle, LA	Jun 6-8	122:35	1	1	0	0	0	0
	Drifting		9:00	0	0	0	0	0	0
Hatteras Blue Marlin	Hatteras, NC	Jun 10-14	1330:20	44	45	2	0	0	0
Baton Rouge Big Game Fishing Club	South Pass, LA	Jun 13-15	202:01	17	7	1	0	0	5
Cat Cay Blue Marlin	Cay Cay, Bahamas	Jun 16-20	821:44	21	11	17	0	1	0
New Orleans Big Game Fishing Club Invitational	South Pass, LA	June 19-21	1264:00	27	30	2	0	0	127
Destin Summer Open Billfish	Destin, FL	Jun 21-22	264:40	7	2	0	0	0	3
	Drifting		8:00	0	0	0	0	0	0
Port Aransas Masters Billfish	Port Aransas, TX	Jun 21-22	240:15	6	1	2	0	0	1
Bimini Blue Marlin	Bimini, Bahamas	Jun 24-28	1726:30	30	5	9	0	0	0
Chandeleur 'Ho Rodeo	South Pass, LA	Jun 27-29	236:35	8	6	0	0	0	13
Ocean City Marlin Club Members	Ocean City, MD	Jun 28-29	50:00	1	5	0	0	0	0
	Drifting		11:00	0	0	0	1	0	0
Texas Championship Billfish	Port Aransas, TX	Jun 28-29	369:45	14	1	15	0	0	0
Pensacola Invitational Billfish	Pensacola, FL	Jul 4-5	2018:50	34	111	1	0	0	14
Golden Meadow Tarpon Rodeo	Grand Isle, LA	Jul 4-6	448:20	9	5	2	0	0	0
General Ray Huff Billfish	South Pass, LA	Jul 4-6	377:25	13	3	0	0	0	9
	Drifting		9:00	0	0	0	0	0	0
Chub Cay Blue Marlin	Chub Cay, Bahamas	Jul 7-11	1015:20	25	1	3	0	0	0

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Table 3 (Continued)

Tournament	Location	Date	Hours Fished	Number Hooked: Blue Marlin	White Marlin	Sail Fish	Sword Fish	Bluefin Tuna	Yellowfin Tuna
Deep Sea Roundup	Port Aransas, TX	Jul 8-10	379:10	6	8	38	0	0	2
	Drifting		6:00	0	0	1	0	0	0
New Orleans Big Game Fishing Club Ladies Day	South Pass, LA	Jul 11-12	431:30	18	19	1	0	0	5
Golden Meadow Big Game Fishing Club Ladies Day	Grand Isle, LA	Jul 12-13	135:40	8	0	0	0	0	1
Port Mansfield Fishing	Port Mansfield, TX	Jul 17-19	458:16	14	52	14	0	0	9
	Drifting		10:00	0	0	0	0	0	0
Mid-Atlantic White Marlin Handicap	Ocean City, MD	Jul 18-20	295:30	2	27	0	0	0	0
Dauphin Island Deep Sea Rodeo	Dauphin Island, AL	Jul 18-19	311:35	1	13	0	0	0	2
	Drifting		9:30	0	0	0	1	0	0
Walter Fondren Poco Bueno	Port O'Conner, TX	Jul 18-19	813:27	21	42	41	0	0	2
Port Aransas Outboard	Port Aransas, TX	Jul 19-20	133:01	0	1	4	0	0	0
Grand Isle Tarpon Rodeo	Grand Isle, LA	Jul 24-26	958:50	8	27	1	0	0	13
Eagle Claw Texas Open	Freeport, TX	Jul 24-26	367:18	9	14	8	0	0	2
	Drifting		150:03	0	0	0	1	0	1
Babylon Invitational Marlin	Babylon, NY	Jul 26	27:00	0	1	0	0	0	0
	Drifting		23:15	0	0	0	0	0	0
Ernest Hemingway Billfish	Bimini, Bahamas	Jul 28-Aug 1	767:03	23	1	11	0	0	0
	Drifting		8:00	0	0	0	0	0	0
Texas International Fishing	Port Isabel, TX	Jul 31-Aug 2	949:46	21	24	24	0	0	11
	Drifting		37:15	0	0	1	1	0	3
Kenner Sporting Club Rodeo	South Pass, LA	Aug 1-3	155:25	12	5	0	0	0	2
Beach Haven Marlin	Ocean City, NJ	Aug 2-3	840:05	0	85	0	0	0	0
Annual Fort Walton-Destin Billfish	Destin, FL	Aug 2-3	570:41	11	131	1	0	0	0
	Drifting		33:30	0	0	0	1	0	0
Mobile Big Game Fishing Club Ladies	Orange Beach, AL	Aug 2-3	289:40	1	26	0	0	0	2
Atlantic City White Marlin-Swordfish	Atlantic City, NJ	Aug 8-9	234:00	2	25	0	0	0	0
	Drifting		198:00	0	2	0	3	0	0
Montauk Yacht Club Cup	Long Island, NY	Aug 9-10	48:45	0	8	0	0	0	0
Gulf Breeze Optimist Rodeo	Pensacola, FL	Aug 10	11:30	0	4	0	0	0	0
Empire South Pass Rodeo	South Pass, LA	Aug 14-16	792:35	19	56	1	0	0	8
Panama City Captain's Day	Panama City, FL	Aug 15-17	924:29	15	120	4	0	0	0
	Drifting		124:14	0	0	0	4	0	0
Pensacola Ladies	Pensacola, FL	Aug 16-17	389:55	8	42	0	0	0	0
$25,000 White Marlin Open	Ocean City, MD	Aug 18-20	868:33	0	344	0	0	0	0
	Drifting		15:00	0	0	0	0	0	0
St. Thomas Invitational Blue Marlin	St. Thomas, V.I.	Aug 21-25	235:30	49	0	0	0	0	0
Golden Meadow Big Game Fishing Club	Grand Isle, LA	Aug 23-24	131:55	9	6	0	0	0	0
	Drifting		21:00	0	0	0	2	0	0

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Table 3 (Continued)

Tournament	Location	Date	Hours Fished	Number Hooked: Blue Marlin	White Marlin	Sail Fish	Sword Fish	Bluefin Tuna	Yellowfin Tuna
Ocean City Annual White Marlin Open	Ocean City, MD	Aug 29-31	524:47	3	233	0	0	0	0
Virginia Beach Blue Marlin	Virginia Beach, VA	Aug 29-31	377:52	6	210	0	0	0	0
Alabama International	Orange Beach, AL	Aug 29-30	1042:15	12	76	4	0	0	4
	Drifting		20:20	0	0	0	1	0	0
South Jersey Fall Festival	Atlantic City, NJ	Aug 30-31	104:00	0	19	0	1	0	0
	Drifting		88:00	0	4	0	6	0	0
New Orleans Big Game Fishing Club Labor Day	South Pass, LA	Aug 30-Sep 1	469:10	24	23	3	0	0	6
Dean Hawn Memorial Billfish	Port Aransas, TX	Sep 5-6	244:00	2	0	10	0	0	0
Annual Destin Billfish	Destin, FL	Sep 12-14	1132:04	41	109	27	0	0	0
Oceanic Open	Sea Pine, SC	Sep 13-14	193:00	1	0	0	0	0	0
Oregon Inlet Fishing	Oregon Inlet, NC	Sep 17-19	486:35	9	165	21	0	0	0
New Orleans Big Game Fishing Club September	South Pass, LA	Sep 19-21	226:25	5	7	0	0	0	3
Blue Water Classic	Orange Beach, AL	Oct 10-12	1295:10	40	140	3	0	0	1
Tripod-Marathon	Marathon, FL	Nov 14-16	469:20	0	0	48	0	0	0
Key Colony Beach Sailfish	Key Colony Bch, FL	Nov 19-23	1130:36	0	1	97	0	0	0
Duck Key Sailfish	Duck Key, FL	Nov 26-30	210:00	0	0	27	0	0	0
Islamorada Sailfish (live bait)	Islamorada, FL	Dec 3-7	1365:42	0	0	145	0	0	0
Dock Sampling									
New England	Trolling	Jul 22-Oct 5	620:13	1	11	1	4	0	0
	Drifting		275:29	0	1	0	3	0	0
New Jersey	Trolling	Jun 28-Sep 26	280:13	2	31	1	0	0	0
	Drifting		67:30	0	0	0	6	0	0
Ocean City	Trolling	Jun 22-Sep 28	1106:48	5	237	2	2	0	0
	Drifting		31:00	0	3	0	0	0	0
Virginia	Trolling	Jun 18-Aug 16	554:37	7	212	2	0	0	0
	Drifting		19:59	0	0	0	2	0	0
Oregon Inlet	Trolling	May 7-Aug 25	5732:27	182	1164	184	0	0	0
Panama City	Trolling	May 8-Sep 27	328:31	14	51	3	0	0	16
	Drifting		37:00	0	0	0	0	0	0
Destin	Trolling	Apr 20-Nov 9	2608:38	60	308	17	0	0	4
	Drifting		133:28	0	0	0	7	0	0
Pensacola	Trolling	May 24-Nov 9	542:03	15	33	1	0	0	9
	Drifting		20:59	0	0	0	1	0	0
Mobile	Trolling	May 10-Nov 8	665:30	15	45	4	0	0	1
	Drifting		27:30	0	0	0	1	0	0
Grand Isle	Trolling	Mar 31-Oct 5	2078:45	46	46	6	0	0	9
	Drifting		40:35	0	0	0	3	0	0

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Table 3 (Continued)

Tournament	Location	Date	Hours Fished	Number Hooked: Blue Marlin	White Marlin	Sail Fish	Sword Fish	Bluefin Tuna	Yellowfin Tuna
South Pass	Trolling	May 2-Oct 12	688:00	24	20	0	0	0	17
	Drifting		26:29	0	0	3	0	0	0
Texas	Trolling	May 21-Oct 12	1154:32	35	16	49	0	1	11
	Drifting		19:30	0	0	4	0	0	0

*Tournaments sampled by NMFS personnel or by personnel from cooperating agencies, 1980.

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Table 4: Billfish, by species, hooked, boated (includes tagged and released), lost and % boated.

YEAR	BLUE MARLIN				WHITE MARLIN				SAILFISH			
	HOOKED	BOATED	LOST	% BOATED	HOOKED	BOATED	LOST	% BOATED	HOOKED	BOATED	LOST	% BOATED
1978	1052	444	608	42%	1397	826	571	59%	1932	1110	822	57%
1979	1020	436	584	43%	1707	855	852	50%	1591	852	739	54%
1980	1287	588	699	46%	4620	3128	1492	68%	2045	1216	829	59%
TOTAL	3359	1468	1891	44%	7724	4809	2915	62%	5568	3178	2390	57%

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Table 5: Summary of hours recorded trolling for big game fishes for 1978, 1979, and 1980.

	GULF OF MEXICO	EAST COAST	BAHAMAS	CARIBBEAN	ALL 4 AREAS	S. FLORIDA & KEYS
TOTAL HOURS TROLLED	85,082	23,016	20,068	5,062	133,228	18,870
NO. OF FISH BOATED* BY SPECIES						
BLUE MARLIN	869	267	222	110	1,468	-
WHITE MARLIN	2,135	2,386	175	113	4,809	-
SAILFISH	521	139	106	12	778	2,400
ALL SPECIES	3,525	2,792	503	235	7,055	2,400
HOURS TROLLED TO HOOK A FISH						
BLUE MARLIN	40.2	45.4	38.6	23.7	39.6	-
WHITE MARLIN	23.3	6.42	60.1	32.4	17.2	-
SAILFISH	107.0	100.1	128.6	421.8	111.67	4.32
ALL SPECIES	12.9	5.32	19.9	13.3	10.8	4.32
HOURS TROLLED TO CATCH A FISH						
BLUE MARLIN	97.9	86.2	90.4	46.0	90.7	-
WHITE MARLIN	39.8	9.65	114.6	44.8	27.7	-
SAILFISH	163.3	165.5	189.3	421.8	171.2	7.8
ALL SPECIES	24.1	8.24	39.8	21.5	18.8	7.8

*BOATED INCLUDES TAGGED + RELEASED

NOTE: SOME NUMBERS MAY BE MISLEADING DUE TO UNEVEN DISTRIBUTION OF SPECIES.

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Table 6: Smallest, largest, and average weight of billfish for 1978, 1979, and 1980.

YEAR	BLUE MARLIN			WHITE MARLIN			SAILFISH		
	SMALLEST	LARGEST	AVERAGE	SMALLEST	LARGEST	AVERAGE	SMALLEST	LARGEST	AVERAGE
1978	48.0	699	250.8	25.0	128	55.1	2.0	84.0	41.6
1979	45.0	1060.5	262.2	9.0	114	52.5	2.0	86.0	44.4
1980	39.0	738	248.1	16.0	135	52.6	8.5	83.0	42.7

Table 7: Sex ratios of billfish examined in 1978, 1979, and 1980.

YEAR	BLUE MARLIN				WHITE MARLIN				SAILFISH			
	FEMALE	MALE	UNKNOWN	MALE / FEMALE	FEMALE	MALE	UNKNOWN	MALE / FEMALE	FEMALE	MALE	UNKNOWN	MALE / FEMALE
1978	198	92	112	2.2:1	195	178	244	1.1:1	86	54	114	1.6:1
1979	231	75	99	3.1:1	210	138	211	1.5:1	69	34	55	2:1
1980	187	80	193	2.3:1	295	174	1118	1.7:1	56	64	161	.8:1

SEX COMPOSITION

For the three year period, 863 blue marlin, 1,190 white marlin, and 363 sailfish, were examined for sex determination (Table 7). These numbers represent 50% of the fish brought to the dock to be weighed. Female blue marlin outnumbered males 2.5:1. The ratio of female to male white marlin was 1.4:1. Sailfish showed a 1.4:1 ratio of females to males.

HOOKED PER UNIT OF EFFORT

One of the purposes of the program was to provide an index for measuring abundance. Dividing the number of fish hooked by the number of hours spent trolling provided the abundance index. These numbers are expressed as the number of fish hooked per unit of effort (HPUE). Figure 1 shows HPUE for all three species.

The overall HPUE for blue marlin fluctuated very little. The HPUE in the Gulf of Mexico showed a slight increase in 1979 over 1978, but dropped in 1980. HPUE remained the same for all three years for the east coast and the Bahamas. The HPUE in the Caribbean showed a yearly increase. A decrease in sampling from three tournaments in 1978, to one in 1980 most likely explains this apparent increase. HPUE for 1980 was based on the St. Thomas, Virgin Island tournament, which historically has had the highest HPUE of any of the Caribbean tournaments.

Fishermen in the Gulf of Mexico and along the east coast have experienced increasing catch of white marlin for the past three years, while the catch of white marlin in the Bahamas and the Caribbean has dropped. In 1979 and 1980, Oregon Inlet, North Carolina, experienced some of the best white marlin fishing that local fishermen could ever remember. In 1980, more white marlin were caught in the Gulf of Mexico

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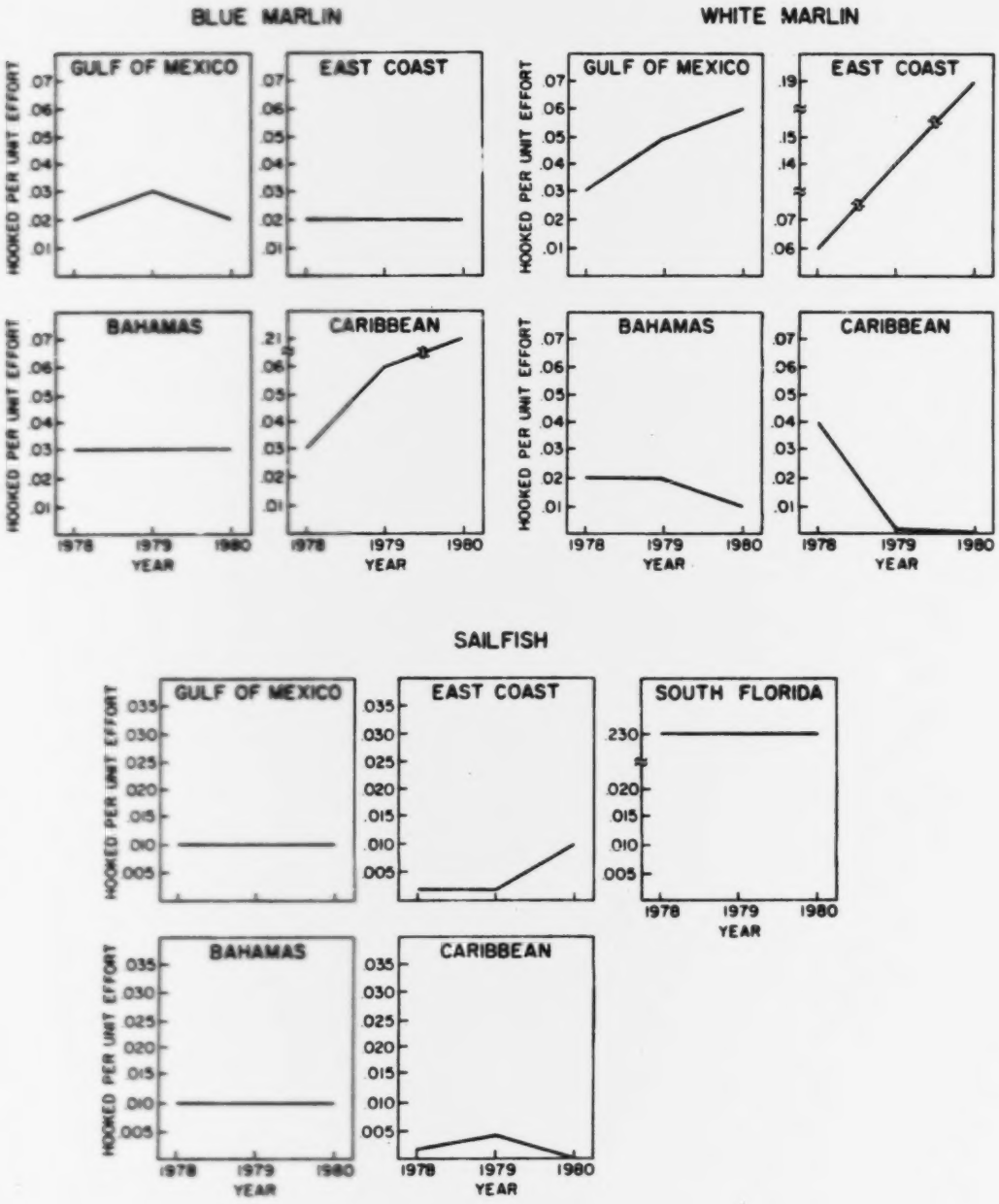
Figure 1: Hooked per unit of effort* by species by selected areas, 1978 - 1980.



*Number of fish hooked divided by number of hours trolled.

than the total number of billfish caught in the Gulf in 1979. White marlin in the Bahamas have been scarce and the white marlin tournaments are no longer held.

HPUE for sailfish fluctuated only slightly. The indicated drop of HPUE for the Caribbean is probably due to the decrease in the number of tournaments sampled. Very few sailfish are caught in the Virgin Islands during August. The south Florida and Florida Keys show an HPUE of .23 for each of the three years.

BAIT INFORMATION

Prior to 1977, trolling artificial baits (lures) for billfishes was minimal in most areas covered by this report. A great deal of interest in using artificials has been shown recently. In the Gulf of Mexico 52,586 hours of effort sampled for bait used showed, 63% of the time artificials alone were trolled and 85% of the time fishermen were using at least one artificial bait. Fishermen in the Gulf have shown the most interest in artificials but artificials are gaining popularity in other areas also. Data collection on type of bait used was begun in 1978. Limited bait information was collected in 1978 and 1979. Extra effort and attention has been given in 1981 in hopes that future reports will be of better use to the fisherman. For information on types of bait used during the years 1978, 1979, and 1980, see Table 8. This table shows the number of hours trolled by each type of bait and HPUE, which is the number of fish (all billfish) hooked divided by the number of hours trolled using a particular bait. HPUE for live bait in the South Florida Keys continues to be slightly higher than using dead bait.

Table 8: Hours trolled and number of billfishes hooked per hour of trolling by type of bait for years 1979 and 1980.

	NATURAL BAITS (DEAD)		ARTIFICAL BAIT (LURE)		BOTH SIMULTANEOUSLY	
AREA	HOURS TROLLED	HPUE	HOURS TROLLED	HPUE	HOURS TROLLED	HPUE
GULF OF MEXICO	7,999	.127	33,073	.077	11,514	.102
EAST COAST	10,178	.299	1,551	.106	3,646	.148
BAHAMAS	13,194	.048	166	.060	902	.057
CARIBBEAN	686	.077	6	.167	214	.182
KEYS	9,066	*.217	0	0	0	0
ALL AREAS	41,123	.163	34,796	.078	16,276	.110

*NOTE: HPUE FOR SAILFISH USING LIVE BAIT IN THE KEYS WAS .279

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APPENDIX

Biologists and port samplers in the field are questioned frequently as to how catch-effort data, tagging data, and biological samples are utilized. Questions range from "why are you asking these questions?" to "what do you do with the samples you are collecting?" In order to provide basic information about associated billfish research this appendix has been added.

LONGLINE OBSERVER PROGRAM

As a result of the Magnuson Fishery Conservation and Management Act of 1976, the Longline Fishery Observer Program has been initiated. The law allows U.S. Observers to board foreign vessels within 200 nautical miles of the coast and record species of fish caught, whether they are dead or alive, and to identify and describe fishing techniques used. It is also required that all fish, except tunas, be released dead or alive. The Japanese have agreed to allow observers to tag and release all live billfishes. Hopefully, the data collected by the Observer Program will allow us to evaluate the effects of longlining on populations of both tunas and billfishes and help with stock assessment work. A monthly newsletter describing longline activities is available upon request by writing:

National Marine Fisheries Service
Pascagoula Lab
P.O. Drawer 1207
Pascagoula, Mississippi 39567

A publication describing the longline fishery is available upon request by writing Mr. Allyn M. Lopez at the SEFC.

COOPERATIVE GAMEFISH TAGGING PROGRAM

In 1980 the National Marine Fisheries Service assumed responsibility for the entire Cooperative Gamefish Tagging Program. In the past three years sport fishermen have tagged and released 10,075 fish. Of this number 81% have been billfish: 839 blue marlin, 2,001 white marlin, 5,268 sailfish, and 31 swordfish. Since 1978, 109 billfish have been recaptured. The tagging program has increased greatly in the last two years due mainly to two factors: increase of interest from big game fishing clubs and tournament directors and the initiation of the Foreign Longline Observer Program. Sportfishermen have played the major role in the success of the tagging program. As a result of the tagging program much has been learned about the migration and the life span of billfishes. A major finding was made this year when a white marlin was caught off Ft. Lauderdale, Florida, June 25. This white marlin had been tagged and released August 30, 1971, off of Ocean City, Maryland. This recapture set the all time time-at-large record for a billfish at nine years ten months. The shortest time-at-large also occurred in 1981. A sailfish was tagged and released off of West Palm Beach and five minutes later was taken by another angler. The second factor to help the tagging program was the initiation of the Foreign Longline Observer Program. One stipulation of the Magnuson Fisheries Conservation and Management Act of 1976, was all live billfishes caught on longline gear were to be released and tagged if possible. In 1978 an observer in the Gulf of Mexico tagged and released five white marlin. Of the five, four were recaptured the next year: two in the same area and two off the coast of Virginia. This is significant in that white marlin had previously been recorded as migrating in the opposite manner during that

same time or year. Also the two fish recaptured off the Virginia coast had been reported as being dead when the observer released them. Apparently some fish that appear to be dead or dying after being tagged survive. If you would like to receive a copy of the annual tagging newsletter, please contact Mr. Ed Scott, 75 Virginia Beach Drive, Miami, Florida 33149.

AGE AND GROWTH STUDY

An important part of assessing billfish stock structure and understanding their population dynamics is being able to age the fish. The Miami Lab has initiated research to determine age and growth of blue and white marlin. Little information is available on the biology of these animals, partly because large migratory fish are difficult to observe. Past research has indicated that marlin are fairly slow growing, long-lived fishes, but the specifics of their age and growth are not known.

The skeletal hardparts of fish: vertebrae, otoliths (minute inner ear bones) spines, gill covers, and scales, have been used by biologists to successfully determine the age and growth of some species. These hardparts from growth rings much like the concentric growth rings of a tree. During slow growth, these rings (called circuli) form close together, while during fast growth they are spaced farther apart. By counting the major growth bands, it is possible to estimate age, and growth rates. Validating these estimates is usually more difficult.

Not all skeletal hardparts can be used to estimate age and growth. For marlin, it must first be determined which (if any) are most reliable. To do this, a variety of hardparts from both sexes, over the

complete size range are needed. It is particularly important to collect samples from very small fish (for blues 50 pounds or less, and for whites 30 pounds or less) because they are easier to age; collecting samples from very large fish is also important. Obtaining these samples will hopefully answer questions such as: "How many growth bands are laid down each year?" and "How old do marlins get?"

For information pertaining to this work please write to Dr. Eric Prince at the Miami Laboratory, SEFC.

ACKNOWLEDGEMENTS

As in the past, we owe a great deal of gratitude to all of the anglers, crews and tournament managers for their cooperation and patience in providing us with their fishing data. We particularly thank the Florida Department of Natural Resources, and the South Carolina Wildlife and Marine Resources Department for their cooperation and assistance in sampling tournaments in their respective states. For the Gulf of Mexico data, we are grateful for the continued support of the various big game fishing clubs and charterboat associations from Texas to Florida. We also thank the Bimini Big Game Fishing Club, the Cat Cay Club, the Chub Cay Club, the Club Nautico de San Juan, and the directors of the Governers Invitational Blue Marlin Tournament. Special recognition is extended to Theresa Guarino and Teresa Wilson for their preparation of tables and text in this paper.